WE CLAIM:

1. A method for increasing urine flow in an individual in need thereof comprising administering an amount of a GLP-1 or a GLP-1 agonist effective to increase urine flow.

2. The method of claim 1, wherein said increase in urine flow is accompanied by an increase in sodium excretion in said individual.

3. The method of claim 1, wherein said increase in urine flow does not increase urinary potassium concentration in said individual.

4. A method of decreasing the concentration of potassium in the urine of an individual in need thereof comprising administering to said individual an amount of a GLP-1 or GLP-1 agonist effective to decrease the concentration of potassium in the urine.

5. A method of alleviating a condition or disorder associated with toxic hypervolemia in an individual, comprising administering to said individual a therapeutically effective amount of a GLP-1 or GLP-1 agonist.

6. A method of treating congestive heart failure in an individual comprising administering to said individual a therapeutically effective amount of a GLP-1 or GLP-1 agonist.

7. The method of claim 5, wherein said condition or disorder is hypertension or renal failure.

8. A method of inducing rapid diuresis in an individual in need of diuresis comprising administering to said individual an amount o a GLP-1 or GLP-1 agonist effective to induce diuresis.

9. A method of preparing an individual for a surgical procedure comprising administering to said individual a therapeutically effective amount of a GLP-1 or GLP-1 agonist.

10. The method of claim 9, wherein said surgical procedure is selected from the group consisting of ocular surgical procedures and neurosurgical procedures.

11. The method of claim 9, wherein said GLP-1 or GLP-1 agonist is administered to said individual before said surgical procedure.

12. A method of increasing renal plasma flow and glomerular filtration rate in an individual in need thereof comprising administering to said individual an amount of a GLP-1 or GLP-1 agonist effective to increase renal plasma flow and glomerular filtration rate.

13. A method of treating pre-eclampsia or eclampsia of pregnancy in an individual having pre-eclampsia or eclampsia, comprising administering to said individual a therapeutically effective amount of a GLP-1 or GLP-1 agonist.

14. The method according to any of claims 1, 4, 5, 6, 8, 9, 12, or 13, wherein said GLP-1 or GLP-1 agonist is selected from the group consisting of GLP-1(7-34) and GLP-1(7-35), GLP-1(7-37), GLP-1(7-36), Gln^9 -GLP-1(7-37), D-Gln^9 -GLP-1(7-37), acetyl-Lys^9 -GLP-1(7-37), Thr^{16} -Lys^{18} -GLP-1(7-37), and Lys^{18} -GLP-1(7-37).

15. The method according to any of claims 1, 4, 5, 6, 8, 9, 12, or 13, wherein said GLP-1 agonist is:

R_1-Ala-Glu-Gly-Thr-Phe-Thr-Ser-Asp-Val-Ser-Ser-Tyr-Leu-Glu-Gly-Gln-Ala-Ala-Xaa_{40}-Glu-Phe-Ile-Ala-Trp-Leu-Val-Lys-Gly-Arg-R_3 (SEQ ID NO:67)

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R_2

wherein R_1 is selected from the group consisting of 4-imidazopropionyl (des-amino-histidyl), 4-imidazoacetyl, or 4-imidazo-α, αdimethyl-acetyl;

R_2 is selected from the group consisting of C_6 -C_{10} unbranched acyl, or is absent;

R_3 is selected from the group consisting of Gly-OH or NH_2; and,

Xaa_{40} is Lys or Arg.

16. The method according to any of claims 1, 4, 5, 6, 8, 9, 12, or 13, wherein said GLP-1 agonist is

R_4 -Ser-Tyr-Leu-Glu-Gly-Gln-Ala-Ala-Lys-Glu-Phe-Ile-Ala-Trp-Leu-Val-Xaa_{41}-Gly-Arg –R_5 (SEQ ID NO:68)

wherein R_4 is selected from the group consisting of:

a) H_2 N;

b) H_2 N-Ser;

c) H_2 N-Val-Ser;

d) H_2 N-Asp-Val-Ser;

e) H_2 N-Ser-Asp-Val-Ser (SEQ ID NO:69);

f) H_2 N-Thr-Ser-Asp-Val-Ser (SEQ ID NO:70);

g) H_2 N-Phe-Thr-Ser-Asp-Val-Ser (SEQ ID NO:71);

h) H_2 N-Thr-Phe-Thr-Ser-Asp-Val-Ser (SEQ ID NO:72);

i) H_2 N-Gly-Thr-Phe-Thr-Ser-Asp-Val-Ser (SEQ ID NO:73);

j) H_2 N-Glu-Gly-Thr-Phe-Thr-Ser-Asp-Val-Ser (SEQ ID NO:74); or

k) H_2 N-Ala-Glu-Gly-Thr-Phe-Thr-Ser-Asp-Val-Ser (SEQ ID NO:75);

Xaa_{41} is selected from the group consisting of Lys or Arg; and

wherein R_5 is selected from the group consisting of NH_2, OH, Gly-NH_2, or Gly-OH.

17. The method according to any of claims 1, 4, 5, 6, 8, 9, 12, or 13, wherein said GLP-1 agonist is

H – A – E – G – T – F – T – S – D – V – S – S – Y – L – E – G – Q – A – A – K – E – F – I – A – W – L – V – K – (G) - (R) - (G) (SEQ ID NO:76)

wherein (G), (R), and (G) are present or absent depending on the indicated chain length

with at least one modification of SEQ ID NO:76, selected from the group consisting of:
(a) substitution of a neutral amino acid, arginine, or a D form of lysine for lysine at position 26 and/or 34 and/or a neutral amino acid, lysine, or a D form of arginine for arginine at position 36;
(b) substitution of an oxidation-resistant amino acid for tryptophan at position 31;
(c) substitution according to at least one of:

Y for V at position 16;

K for S at position 18;

D for E at position 21;

S for G at position 22;

R for Q at position 23;

R for A at position 24; and

Q for K at position 26;

(d) a substitution comprising at least one of:

an alternative small neutral amino acid for A at position 8;

an alternative acidic amino acid or neutral amino acid for E at position 9;

an alternative neutral amino acid for G at position 10; and

an alternative acidic amino acid for D at position 15; and

(e) substitution of an alternative neutral amino acid or the D or N-acylated or alkylated form of histidine for histidine at position 7.

18. The method according to any of claims 1, 4, 5, 6, 8, 9, 12, or 13, wherein said GLP-1 or GLP-1 agonist is administered peripherally.

19. The method of claim 18, wherein said peripheral administration is selected form the group consisting of buccal, nasal, pulmonary, oral, intravenous, subcutaneously intraocular, rectal, and transdermal administration.

20. A method for increasing cardiac contractility in an individual in need thereof comprising administering an amount of a GLP-1 or GLP-1 agonist effective to increase cardiac contractility.

21. A method for treating a condition or disorder that can be alleviated by increasing cardiac contractility in an individual having said condition or disorder comprising administering an amount of a GLP-1 or GLP-1 agonist effective to increase cardiac contractility.

22. The method according to claim 21 wherein said condition or disorder is congestive heart failure.

23. The method according to claim 20 or claim 21 wherein said GLP-1 or GLP-1 agonist is selected from the group consisting GLP-1(7-34) and GLP-1(7-35), GLP-1(7-37), GLP-1(7-36), Gln^9 -GLP-1(7-37), D-Gln^9 -GLP-1(7-37), acetyl-Lys^9 -GLP-1(7-37), Thr^{16} -Lys^{18} -GLP-1(7-37), Lys^{18} -GLP-1(7-37),

a peptide of formula (II):

R_1-Ala-Glu-Gly-Thr-Phe-Thr-Ser-Asp-Val-Ser-Ser-Tyr-Leu-Glu-Gly-Gln-Ala-Ala-Xaa_{40}-Glu-Phe-Ile-Ala-Trp-Leu-Val-Lys-Gly-Arg-R_3 (SEQ ID NO:67)

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R_2

wherein R_1 is selected from the group consisting of 4-imidazopropionyl (des-amino-histidyl), 4-imidazoacetyl, or 4-imidazo-α, αdimethyl-acetyl;

R_2 is selected from the group consisting of C_6 -C_{10} unbranched acyl, or is absent;

R_3 is selected from the group consisting of Gly-OH or NH_2; and,

Xaa_{40} is Lys or Arg,

a peptide of formula (III):

R_4 -Ser-Tyr-Leu-Glu-Gly-Gln-Ala-Ala-Lys-Glu-Phe-Ile-Ala-Trp-Leu-Val-Xaa_{41}-Gly-Arg –R_5 (SEQ ID NO:68)

wherein R_4 is selected from the group consisting of:

a) H_2 N;

b) H_2 N-Ser;

c) H_2 N-Val-Ser;

d) H_2 N-Asp-Val-Ser;

e) H_2 N-Ser-Asp-Val-Ser (SEQ ID NO:69);

f) H_2 N-Thr-Ser-Asp-Val-Ser (SEQ ID NO:70);

g) H_2 N-Phe-Thr-Ser-Asp-Val-Ser (SEQ ID NO:71);

h) H_2 N-Thr-Phe-Thr-Ser-Asp-Val-Ser (SEQ ID NO:72);

i) H_2 N-Gly-Thr-Phe-Thr-Ser-Asp-Val-Ser (SEQ ID NO:73);

j) H_2 N-Glu-Gly-Thr-Phe-Thr-Ser-Asp-Val-Ser (SEQ ID NO:74); or

k) H_2 N-Ala-Glu-Gly-Thr-Phe-Thr-Ser-Asp-Val-Ser (SEQ ID NO:75);

Xaa_{41} is selected from the group consisting of Lys or Arg; and

wherein R_5 is selected from the group consisting of NH_2, OH, Gly-NH_2, or Gly-OH, and

a peptide of:

H – A – E – G – T – F – T – S – D – V – S – S – Y – L – E – G – Q – A – A – K – E – F – I – A – W – L – V – K – (G) - (R) - (G) (SEQ ID NO:76)

wherein (G), (R), and (G) are present or absent depending on the indicated chain length with at least one modification of SEQ ID NO:76 selected from the group consisting of:

(a) substitution of a neutral amino acid, arginine, or a D form of lysine for lysine at position 26 and/or 34 and/or a neutral amino acid, lysine, or a D form of arginine for arginine at position 36;

(b) substitution of an oxidation-resistant amino acid for tryptophan at position 31;

(c) substitution according to at least one of:

Y for V at position 16;

K for S at position 18;

D for E at position 21;

S for G at position 22;

R for Q at position 23;

R for A at position 24; and

Q for K at position 26;

(d) a substitution comprising at least one of:

an alternative small neutral amino acid for A at position 8;

an alternative acidic amino acid or neutral amino acid for E at position 9;

an alternative neutral amino acid for G at position 10; and

an alternative acidic amino acid for D at position 15; and

(e) substitution of an alternative neutral amino acid or the D or N-acylated or alkylated form of histidine for histidine at position 7.

24. The method according to claim 20 or claim 21 wherein said GLP-1 or GLP-1 agonist is administered peripherally.

25. The method according to claim 24, wherein said GLP-1 or GLP-1 agonist is administered subcutaneously.

26. The method of claim 24, wherein said peripheral administration is selected form the group consisting of buccal, nasal, pulmonary, oral, intravenous, intraocular, rectal, and transdermal administration.

27. The method of claim 5, wherein the condition or disorder is congestive heart failure.

28. The method of claim 5, wherein the condition or disorder is nephrotic syndrome.

29. The method of claim 5, wherein the condition or disorder is pulmonary edema.

30. The method of claim 5, wherein the condition or disorder is cirrhosis.

31. The method of claim 21, wherein the condition or disorder is pulmonary edema.

32. The method of claim 21, wherein the condition or disorder is systemic edema.

33. The method of claim 21, wherein the condition or disorder is renal failure.

34. A method of treating congestive heart failure in an individual comprising administrating to said individual a therapeutically effective amount of an exendin or exendin agonist.